Permitting and Approval of Modular Package Treatment Plants for Treatment of Domestic Wastewater

Introduction

In North Dakota, domestic wastewater typically is treated using facultative pond systems, with mechanical treatment plants limited to the largest cities. The rapid growth of the oil industry in western North Dakota has sparked increasing interest in using modular mechanical/biological package plants to treat domestic wastewater. This document addresses some of the major regulatory issues associated with these types of treatment systems.

1. Surface Water Discharge

Any discharge of wastewater to surface water requires a North Dakota Permit Discharge Elimination System (NDPDES) permit from the North Dakota Department of Health to be in compliance with state and federal rules.

Individual Permit

Currently, only discharges from waste stabilization ponds may be covered under the department's general permits for domestic wastewater discharges. Discharges from a modular package treatment plant would require an individual NDPDES permit.

Permit Review Timeline

Review of a permit application to set discharge limits may take up to 180 days. The review process takes into account site-specific information about the receiving stream. Coverage under the general permits for waste stabilization ponds can be issued within four weeks of receipt of a notice of intent.

Intermittent Versus Continuous Discharge

Wastewater treatment design standards require 180 days storage to prevent the need to discharge during ice-covered conditions. Only the largest rivers in North Dakota have sufficient flows during frozen conditions to accommodate wastewater discharges.

Discharge Limits

Discharge limits for a specific facility are determined during the permit review process, but they likely would be similar to limits listed in the general permits.

Design Review

Plans and specifications for the wastewater collection and treatment systems must be approved by the department's Division of Municipal Facilities prior to construction. The plans and specifications must be stamped by a North Dakota registered engineer and conform to the 10 States Standards. Wastewater stabilization ponds must conform to Chapter 90 (Biological Treatment) requirements. Wastewater stabilization ponds must have a ¼-mile separation from any neighboring permanent dwellings. While not mandatory, this ¼-mile separation also is recommended for facility-owned housing units such as crew camps.

2. On-site Infiltration

Design Review

On-site wastewater systems cannot serve more than 25 residents per system. If an on-site wastewater system is proposed for more than 100 residents, secondary treatment such as a package wastewater treatment plant capable of meeting secondary treatment standards must be installed prior to subsurface drain field disposal. Housing units cannot be split up to avoid this requirement.

3. Reuse

Wastewater reuse systems must be reviewed and approved by the Division of Municipal Facilities prior to construction. The standard of treatment will be to meet reuse/recycling needs. If the reuse enterprise cannot handle continuous flow, up to 180 days of storage may be required. Any discharge off site must have a permit from the Division of Water Quality.

4. Pretreatment

If the treated wastewater will be transferred to a municipal sewer system, approval and water quality limits must be obtained from the municipality. The collection system design must be reviewed and approved by the Division of Municipal Facilities.

5. Other Information

Biosolids and Septic Pumpers

Biosolids from wastewater treatment plants must be managed in accordance with the Environmental Protection Agency's Section 503 Biosolids Rule. Septage haulers and pumpers must obtain a septic pumper license.

Approval of Treatment Technology

The department does not provide blanket approval of any specific treatment technology or process. Approvals and permits are based on site-specific design.

Water Supply

Plans and specifications for a water supply system must be approved by the Division of Municipal Facilities prior to construction. Plans and specifications must be stamped by a North Dakota registered engineer and conform to the 10 State Standards, the North Dakota State Plumbing Code, and North Dakota water well installation regulations. Systems that qualify as public water systems must meet specific monitoring/reporting requirements under the Safe Drinking Water Act. Haulers of drinking water must be approved and meet specific requirements.

Other Requirements

For information on other requirements pertaining to oil field housing, please refer to the following document: http://www.ndhealth.gov/EHS/Publications/OilPatchHousing.pdf

6. Contacts

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